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*Admitted only in Maryland *Admitted only in Virginia *Practice Limited to Federal Agencies

May 17, 2004

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Art Unit 2832

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Re:

U.S. Utility Patent Application

Application No. 10/684,588; Filed: October 15, 2003

For: Micro Magnetic Latching Switches and Methods of Making Same

Inventors: Shen *et al*.
Our Ref: 2040.0270000

Sir:

Transmitted herewith for appropriate action are the following documents:

- 1. Information Disclosure Statement;
- 2. Form PTO-1449 (9 pages) listing the cited documents;
- 3. Copies of the (73) cited documents; and
- 4. Return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Jason D. Eisenberg

Attorney for Applicants
Registration No. 43,447

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IDE#



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Shen et al.

Appl. No.: 10/684,588

Filed: October 15, 2003

For: Micro Magnetic Latching Switches

and Methods of Making Same

Confirmation No.: 1748

Art Unit: 2832

Examiner: B. Rojas

Atty. Docket: 2040.0270000

Information Disclosure Statement

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this
 Information Disclosure Statement was cited in a communication from a foreign
 patent office in a counterpart application and this communication was not
 received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty
 days prior to the filing of this information disclosure statement.
- \[
 \text{ \text{S} 1.97(b)}. This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R.
 \[
 \text{ \text{1.491} in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R.
 \[
 \text{ \text{1.114}}. No statement or fee is required.
 \]
- 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

	☐ a.	Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of
		information contained in this Information Disclosure Statement was first
		cited in any communication from a foreign patent office in a counterpart
		foreign application not more than three months prior to the filing of this
		Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
		Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of
		information in this Information Disclosure Statement was cited in a
		communication from a foreign patent office in a counterpart foreign
		application and, to my knowledge after making reasonable inquiry, was
		known to any individual designated in 37 C.F.R. § 1.56(c) more than
		three months prior to the filing of this Information Disclosure Statement.
		37 C.F.R. § 1.97(e)(2).
	□ c.	Attached is our PTO-2038 Credit Card Payment Form in the amount of
		\$ in payment of the fee under 37 C.F.R. § 1.17(p).
4 .	Filing	under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being
	filed n	nore than three months after the U.S. filing date and after the mailing date
	of a Fi	nal Rejection or Notice of Allowance, but before payment of the Issue Fee.
	Enclos	sed find our PTO-2038 Credit Card Payment Form in the amount of
	\$	in payment of the fee under 37 C.F.R. § 1.17(p); in addition:
	☐ a.	Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of
		information contained in this Information Disclosure Statement was cited
		in a communication from a foreign patent office in a counterpart foreign

application not more than three months prior to the filing of this

		Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
	□ b.	Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of
		information in this Information Disclosure Statement was cited in a
		communication from a foreign patent office in a counterpart foreign
		application and, to my knowledge after making reasonable inquiry, was
		known to any individual designated in 37 C.F.R. § 1.56(c) more than
		three months prior to the filing of this Information Disclosure Statement.
		37 C.F.R. § 1.97(e)(2).
<u></u>	The do	ocument(s) was/were cited in a search report by a foreign patent office in a
	counte	erpart foreign application. Submission of an English language version of
	the sea	arch report that indicates the degree of relevance found by the foreign office
	is pro	vided in satisfaction of the requirement for a concise explanation of
	releva	nce. 1138 OG 37, 38.
☐ 6.	A con	cise explanation of the relevance of the non-English language document(s)
	appear	rs below:
⊠ 7.	Copies	s of the documents are submitted herewith.
□ 8.	Copie	s of the documents were cited by or submitted to the Office in an IDS that
	compl	ies with 37 C.F.R. § 1.98(a)-(c) in Application No, filed
		, which is relied upon for an earlier filing date under 35 U.S.C.
	§ 120.	Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

9. No copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted in accordance with 1276 OG 55 because this application was filed after June 30, 2003.

☐ 10. It is expected that the examiner will review the prosecution and cited art in the parent application no(s). _____ in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Jason D. Eisenberg Attorney for Applicants Registration No. 43,447

Date

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(202) 371-2600

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FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT

Jun Shen

FILING DATE October 15, 2003 ART UNIT

				October 15, 2003	2	832		
			U.S	S. PATENT DOCUMENT	`S			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE	
	AA1	4,065,677	12/27/1977	Micheron et al.			12/23/1975	
	AB1	4,461,968	07/24/1984	Kolm et al.			01/11/1982	
	AC1	4,496,211	01/29/1985	Daniel			12/05/1980	
	AD1	4,570,139	02/11/1986	Kroll			12/14/1984	
	AE1	5,016,978	05/21/1991	Fargette et al.			05/21/1991	
	AF1	5,048,912	09/17/1991	Kunikane et al.			03/09/1989	
	AG1	5,398,011	03/14/1995	Kimura et al.			05/17/1993	
	AH1	5,472,539	12/05/1995	Saia et al.			06/06/1994	
 	AI1	5,475,353	12/12/1995	Roshen et al.			09/30/1994	
	AJ1	5,557,132	09/17/1996	Takahashi			12/06/1994	
	AK1	5,629, 918	05/13/1997	Ho et al.			01/20/1995	
			FOREIGN	 PATENT DOCUMENTS	<u> </u>		<u> </u>	
EXAMINER		DOCUMENT						
INITIAL		NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION	
	AL1	DE 10031569 A1	02/01/2001	Germany			Yes No	
	AM1	DE 19820821 C1	12/16/1999	Germany			Yes No	
	AN1	EP 0452012 A2 & A3	10/16/1991	Europe			Yes No	
	AO1	EP 0685864 A1	12/06/1995	Europe			Yes	
		EP 0709911 A2 & A3	5/1/1996	Europe			Yes No	
	AP1		 R (Including Au	thor, Title, Date, Pertiner	nt Pages, etc.)		1	
	AR			e's Plenty of Room at the B m/nanotech/feynman.html.		aber 29, 1959, pp	o.1-12, Internet	
	AS		E. Fullin, J. Gobet, H.A.C. Tilmans, and J. Bergvist, "A New Basic Technology for Magnetic Micro-Actuators", pp. 143-147.					
	AT			S. Muller "Magnetically Ac Microelectromechanical S				
EXAMINER					DATE	CONSIDERED		
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		Page 2 of 9
	ATTY. DOCKET NO. 2040.027000	APPLICATION NO. 10/684,588
FORM PTO-1449	FIRST NAMED INVENTOR	
	Jun Shen	
INFORMATION DISCLOSURE STATEMENT	FILING DATE	ART UNIT
	October 15, 2003	2832

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE	
INTIAL	AA2	5,696,619	12/9/1997	Knipe et al.	CEAGS	BOB-CEASS	02/27/1995	
	AB2	5,784,190	07/21/1998	Worley		-	04/27/1995	
	AC2	5,818,316	10/06/1998	Shen et al.			07/15/1997	
	AD2	5,838,847	11/17/1998	Pan et al.			10/23/1997	
<u> </u>	AE2	5,847,631	12/8/1998	Taylor et al.			09/30/1996	
	AF2	5,898,515	04/27/1999	Furlani et al.			11/21/1996	
	AG2	5,945,898	08/31/1999	Judy et al.	:		05/31/1996	
	AH2	5,982,554	11/09/1999	Goldstein et al.		-	12/31/1997	
	AI2	6,016,092	01/18/2000	Qiu et al.			08/10/1998	
	AJ2	6,016,095	01/18/2000	Herbert			07/06/1998	
	AK2	6,028,689	02/22/2000	Michalicek et al.			01/24/1997	
	<u> </u>		FOREIGN	N PATENT DOCUMENT	'S			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION	
	AL2	EP 0780858 A1	06/25/1997	Europe			Ye:	
	AM2	EP 0869519 A1	10/07/1998	Europe			Yes No	
	AN2	EP 0887879 A1	06/19/1998	Europe			Ye: No	
	AO2	EP 887879 A1	12/30/1998	Europe			Yes No	
	AP2	FR 2572546 A1	5/2/1986	France			Yes No	
		OTHE	R (Including A	uthor, Title, Date, Pertine	nt Pages, etc.)			
	AR	Ezekiel JJ State Sens Electric C http://www	Kruglick and Kr or and Actuator ontact Phenomer v-bsac.eecs.berk	istofer SJ Pister, "Project C Workshop, 1998, Hilton Ho Ia, Nuremberg, Germany, S eley.edu/Kruglick/relays/re	Overview: Micro ead 98 and 19 th l Sept. 1998 (Dow lays.html, on Ju	Relays", Tech. International Co nloaded from I ly 12, 1999) 2 p	Digital Solid- nference on nternet Source: gs.	
	AS	2 Tech. Dig	Ezekiel J.J. Kruglick and Kristofer S.J. Pister, "Bistable MEMS Relays and Contact Char Tech. Digital Solid-State Sensor and Actuator Workshop, Hilton Head, 1988 and 19 th Into Conference on Electric Contact Phenomena, Nuremberg, Germany, Sept. 1998, 5 pgs.					
	АТ	2 Laure K. I 1999, IEE	agorce and Oliv E Journal of Mic	er Brand, "Magnetic Micro roelectromechanical System	actuators Based ns, IEEE, Vol. 8	on Polymer Mass, No. 1., March	agnets", March n 1999, 8 pages.	
	1	1 1						

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

		Page 3 of 9
	ATTY. DOCKET NO. 2040.027000	APPLICATION NO. 10/684,588
FORM PTO-1449	FIRST NAMED INVENTOR Jun Shen	
INFORMATION DISCLOSURE STATEMENT	FILING DATE October 15, 2003	ART UNIT 2832
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				U.S. PA	TENT DOCUMENTS			
EXAMINER			JMENT	DATE	NAME	GY A SS	GV ID. GV A GG	EN DIG DIGE
INITIAL	AA3	6,078		DATE 06/20/2000	NAME Yoshikawa et al.	CLASS	SUB-CLASS	FILING DATE
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	AB3	6,084	,281	07/04/2000	Fullin et al.			
	AC3	6,094	,293	07/25/2000	Yokoyama et al.	-		
	AD3	6,115	,231	09/05/2000	Shirakawa			
	AE3	6,124	,650	09/26/2000	Bishop et al.			
	AF3	6,143	,997	11/07/2000	Feng et al.			
	AG3	6,160	,230	12/12/2000	McMillen et al.			
	AH3	6,094	,116	07/25/2000	Tai et al.			
	AI3	_						
	AJ3							
	AK3							
				FOREIGN	PATENT DOCUMENTS			
EXAMINER INITIAL			CUMENT MBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
INITIAL	+		-275519	10/1/1992	Japan	CLASS	SUB-CLASS	Yes
	AL3							No
	AM3	ЈР 6	-251684	9/9/1994	Japan			Yes No
	AN3	JP 5	4-161952	12/22/1979	Japan			Yes No
	AO3	wo	97/39468	10/23/1997	PCT			Yes No
	AP3	wo	98/34269	8/6/1998	PCT		_	Yes No
	11113		OTHE	R (Including Au	thor, Title, Date, Pertinent	Pages, etc.)	<u> </u>	-
	AR	<u>3</u>	"P10D Ele- http://scited	ctricity & Magne c.uwhichill.edu.b	etism Lecture 14", Internet Sob/cmp/online/P10D/Lecture	ource: 14/lect14.htn,	January 3, 2000	, pp.1-5.
	AS	<u>3</u>	"Ultramini information	ature Magnetic I n from Teledyne	atching to 5-relays SPDT De Relays, 1998.	C TO C Band'	', Series RF 341	, product
	АТ	3	M. Ruan et Copyright	t al., "Latching M 2001 Elsevier Sc	ficroelectromagnetic Relays' cience B.V., pages 346-350.	' , Sensors and	Actuators A 9	(July 15, 2001),
EXAMINER	 -					DATE	CONSIDERED	
					n conformance with MPEP 609. Dr	aw line through ci	tation if not in conf	ormance and not
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		Page 4 of 9
	ATTY. DOCKET NO. 2040.027000	APPLICATION NO. 10/684,588
FORM PTO-1449	FIRST NAMED INVENTOR	
	Jun Shen	
INFORMATION DISCLOSURE STATEMENT	FILING DATE	ART UNIT
	October 15, 2003	2832

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EXAMINER		DOCU	MENT	DATE	NAME	CI ASS	SLID CLASS	EH DIG D I MD
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	AL4	WO 9927548		6/3/1999	PCT			Yes No
	AM4							Yes No
	AN4							Yes No
	AO4							Yes No
	AP4	1						Yes No
	Λ. τ		OTHE	I R (Including Au	thor, Title, Date, Pertinent F	Pages, et	tc.)	INO
	AR	4	Xi-Qing Su Cantilever Germany, I	in, K.R. Farmer, Actuators", 11 th EEE, January 25	W.N. Carr, " A Bistable Micro Annual Workshop on Micro E 5-29, 1998, pp. 154-159.	orelay B lectrical	ased on Two-Segn Mechanical System	nent Multimorph ms, Heidelberg,
	AS	4	William P. Taylor and Mark G. Allen, "Integrated Magnetic Microrelays: Normally Open, N Closed, and Multi-Pole Devices", 1997 International Conference on Solid-State Sensors and Actuators, IEEE, June 16-19, 1997, pp. 1149-1152.					
	AT	4	William P. Micromach pp.181-191	ined Relays", Jo	Brand, and Mark G. Allen. "Fu urnal of Microelectromechani	lly Integ	rated Magnetically ems, IEEE, Vol. 7,	Actuated No. 2, June 1998,
EXAMINER	.1	L	I			D.	ATE CONSIDERED)

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		Page 5 of 9
	ATTY. DOCKET NO. 2040.027000	APPLICATION NO. 10/684,588
FORM PTO-1449	FIRST NAMED INVENTOR	
	Jun Shen	
INFORMATION DISCLOSURE STATEMENT	FILING DATE	ART UNIT
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EXAMINER INITIAL		DOCU NUMB		DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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	AL5		_					Yes No
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	AO5			<u> </u>		•		No Yes
	AP5						***************************************	No
			OTHER	R (Including Au	thor, Title, Date, Pertinent	Pages, etc.)		
	AR	<u>5</u>	Tilmans, et January 17-	al., "A Fully-Pa 21, 1999, copyri	ckaged Electromagnetic Mici ight IEEE 1999, pp. 25-30.	rorelay", Proc	c. MEMS '99, O	rlando, FL,
	AS	<u>5</u>	http://home	e.earthlink.net/-trots and Micromed	aling of Micromechanical Deimmerw/mems/scale.html on chanical Systems by W.S.N287, and other sources)	. January 3. 2	000 (adanted fro	om article tors, Vol. 19, No.
	AT	<u>5</u>	John A. Wr MEMS Teo 1998, page:	right and Yu-Cho chnology", Proce s 13-1 to 13-4.	ong Tai, "Micro-Miniature El edings: 46 th Annual Internati	ectromagneti onal Relay C	c Switches Fabi onference: NAF	ricated Using RM '98, April
EXAMINER		<u> </u>	L			DATI	CONSIDERED	
EXAMINER: In	itial if refer	ence cor	nsidered, whether	er or not citation is in munication to Applic	conformance with MPEP 609. Dra	w line through c	itation if not in con	formance and not
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		Page 6 of 9	ī
	ATTY. DOCKET NO. 2040.027000	APPLICATION NO. 10/684,588	
FORM PTO-1449	FIRST NAMED INVENTOR		_
	Jun Shen		
INFORMATION DISCLOSURE STATEMENT	FILING DATE	ART UNIT	_
	October 15, 2003	2832	

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EXAMINER INITIAL		DOCU NUMI	MENT BER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA6							
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EXAMINER INITIAL			CUMENT MBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL6							Yes No
	AM6							Yes No
	AN6							Yes No
	AO6							Yes No
	AP6	1	.					Yes No
	7.20		OTHER	(Including Au	thor, Title, Date, Pertinent	Pages, etc.)		110
	AR	John A. Wright, Yu-Chong Tai and Gerald Lilienthal, "A Magnetostatic MEMS Switch for DC Brushless Motor Commutation", Proceedings Solid State Sensor and Actuator Workshop, Hilton Head, 1998, June 1998, pages 304-307.						
	AS	<u>6</u>	John A. Wright, Yu-Chong Tai, and Shih-Chia Chang, "A Large-Force, Fully-Integrated MEMS Magnetic Actuator", Tranducers '97, 1997 International Conference on Solid State Sensors and Actuators, Chicago, June 16-19, 1997.					
	Ann, Chong H. & Allen, Mark G., " A Fully Integrated Micromagnetic Actuator With A Multilevel Meander Magnetic Core, 1992 IEEE, Solid-State Sensor and Actuator Workshop, Technical Digest, Hilton Head Island, South Carolina, June 22-25, 1992, Technical Digest, pp. 14-17.							n A Multilevel chnical Digest,
EXAMINER		L	<u> </u>			DATE	CONSIDERED	
				r or not citation is in nunication to Appli	n conformance with MPEP 609. Drawcant.	w line through c	itation if not in con	formance and not

		Page 7 of 9	-
	ATTY. DOCKET NO. 2040.027000	APPLICATION NO. 10/684,588	
FORM PTO-1449	FIRST NAMED INVENTOR Jun Shen		•
INFORMATION DISCLOSURE STATEMENT	FILING DATE October 15, 2003	ART UNIT 2832	•

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EXAMINER INITIAL		DOCU NUME	MENT	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
INTIAL	AA7	INCIVIL	JEK .	DAIL	IVAIVIL	CLASS	SOD-CLASS	TILING DATE
	AB7				-			-
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EXAMINER INITIAL			CUMENT	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	1.7.7	NUN	MBER				1	Yes
	AL7	-		_				No Yes
	AM7	-						No Yes
	AN7							No Yes
	AO7							No Yes
	AP7							No No
		1	OTHER	(Including A	uthor, Title, Date, Pertinent	Pages, etc.)		
	AR 7 English-Language Abstract of DE 10031569, published February 1, 2001, 1 page.							
	AS	English-Language Abstract of DE 19820821, published December 16, 1999, 1 page.						
	AT	7	English-Lar	nguage Abstrac	t of EP 0780858, published Ju	nne 25, 1997,	l page.	
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		Page 8 of 9
	ATTY. DOCKET NO. 2040.027000	APPLICATION NO. 10/684,588
FORM PTO-1449	FIRST NAMED INVENTOR Jun Shen	
INFORMATION DISCLOSURE STATEMENT	FILING DATE October 15, 2003	ART UNIT 2832

<u> </u>				U.S.	PATENT DOCUMEN	TS		
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INITIAL	AA8	NOME	DEK	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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INITIAL			UMENT IBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL8							No
	AM8							Yes No
	AN8							Yes No
	<u> </u>	1						Yes
	AO8							No Yes
	AP8		OTHE	D (Including	Author, Title, Date, Pe	rtinent Pages etc.)		No
		<u> </u>	OTHE	K (Including	Author, Title, Date, Fe	timent i ages, etc.)		
	AR 8 English-Language Abstract of EP 0869519, published October 7, 1998, 1 page.							
	AS	8	English-La	inguage Abstra	act of FR 2572546, publ	ished May 2, 1986, 1	page.	
	AT	<u>8</u>	English-La	inguage Abstr	act of JP 4275519, publi	shed October 1, 1992	2, 1 page.	
EXAMINER		•				DATE	CONSIDERED	
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considered. Incli	ide copy of	this form	with next con	munication to Ap	pricant.			

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		Page Page	9 of 9
	ATTY, DOCKET NO.	APPLICATION NO.	
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	Jun Shen		
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	October 15, 2003	2832	

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AC9 AF9 AF9 AF9 AF9 AF9 AF9 AF9 AF9 AF9 AF	INITIAL	AA9	NOM	JLK	DATE	NAME	CLASS	30D-CLASS	FILING DATE	
AD9 AF9 AF9 AG9 AH9 AJ9 AJ9 AK9 EXAMINER No AG9 AN9 AN9 AN9 AN9 AN9 AN9 AN9 AN9 AN9 AN		AB9			<u> </u>					
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